

REMARKS

The rejection of Claims 1-60 under 35 U.S.C. § 103(a) as unpatentable over U.S. 5,378,322 (Hornsey) in view of U.S. 4,767,464 (Strauch et al) or U.S. 4,026,762 (Bauman), is respectfully traversed.

The present invention concerns the technical field of mineral fillers, in particular for paper-making applications, and their improvement by suitable treatments in order to improve either the manufacturing process of the paper sheet or its properties.

As described in the specification beginning at page 1, line 11, pigments, fillers and/or minerals based on carbonates, and particularly calcium carbonates, are known in the art of paper-making and other arts. The art has suggested treatments of such materials to improve their properties. Such treatments have been problematical, as described. The present invention addresses the problems of the prior art.

As recited in Claim 1, the invention is an aqueous suspension comprising (1) one or more pigments, fillers or minerals, and optionally (2) a dispersant polymer to stabilise the rheology of the suspension, wherein,

a) said component (1) comprises a natural carbonate and the reaction product or products of said carbonate with gaseous CO₂ and the reaction product or products of said carbonate with one or more medium-strong to strong H₃O⁺ ion-providers, and

b) wherein said suspension has a pH greater than 7.5 measured at 20° C.

The invention enables the weight of paper containing such pigments, fillers or minerals, at constant surface area and thickness to be reduced. This property is demonstrated throughout the data described in the specification. The applied prior art neither suggests the presently-claimed invention nor the results obtained therefrom.

Hornsey is based on a discovery that injection of carbon dioxide into an aqueous vehicle of an aqueous pulp of cellulose paper-forming fibers can be employed to provide bicarbonate ion to catalyze the reaction between cellulose and alkyl ketene dimers. The alkyl ketene dimers act as sizing agents, and the above reaction is part of a non-acidic sizing process employing a calcium carbonate filler for the paper. The addition of the carbon dioxide speeds up this generally slow reaction. See column 1, lines 10-45.

The Examiner relies on Strauch et al and Bauman simply for their disclosures of natural calcium carbonates.

As Applicants' counsel pointed out during an interview held on October 22, 2002 in the parent application, the presently-claimed suspension is intended to be added to an aqueous pulp of paper-forming fibers; the suspension itself is not such an aqueous pulp, unlike Hornsey. Nor is there any disclosure or suggestion in Hornsey to add one or more medium-strong to strong H_3O^+ ion-providers. The Examiner finds, based on reaction (2) of Hornsey, that it would have been obvious to add acid to create more bicarbonate ion as long as the pH of the suspension stays within the range of 7-9 disclosed by Hornsey. In reply, without the present disclosure as a guide, there would have been no motivation to add an acid, let alone a medium-strong to strong H_3O^+ ion-provider. Indeed, there is no disclosure or suggestion in Hornsey that the bicarbonate ion generated is insufficient from adding carbon dioxide *per se*.

For all the above reasons, it is respectfully requested that the rejection over prior art be withdrawn.

The rejection of Claims 1-60 under the judicially created doctrine of obviousness-type double patenting over Claims 1-59 of U.S. 6,666,953 (parent patent) is respectfully traversed in view of the terminal disclaimer **submitted herewith**. Accordingly, it is respectfully requested that the rejection be withdrawn.

The rejection of Claims 1-60 under 35 U.S.C. § 112, first paragraph, is respectfully traversed. During the above-referenced interview, the Examiner indicated that he believed that grain size is not critical. Regarding the medium-strong to strong H_3O^+ ion-provider component limitation, it is clear from the disclosure that one skilled in the art could choose applicable medium-strong to strong H_3O^+ ion-providers beyond those specifically listed by routine experimentation. Regarding the BET specific surface area limitation, the examiner has no basis to conclude that a particular range is critical or essential.

A specification disclosure which contains a teaching of the manner and process of making and using an invention in terms which correspond in scope to those used in describing and defining the subject matter sought to be patented must be taken as being in compliance with the enablement requirement of 35 U.S.C. §112, first paragraph, unless there is a reason to doubt the objective truth of the statement contained therein which must be relied on for enabling support. The first paragraph of 35 U.S.C. §112 requires nothing more than objective enablement. See *In re Marzocchi*, 439 F. 2d 220, 169 USPQ 367 (CCPA 1971) (copy enclosed), and M.P.E.P. 2164.04. The Examiner has set forth **no** reasons why one skilled in the art would doubt the truth of any statement in Applicants' disclosure.

In the absence of prior art, it is manifestly unjust to require such limiting of the claims, since it would invite any would-be pirate to use a medium-strong to strong H_3O^+ ion-provider other than one specifically named, and/or a BET specific surface area even slightly outside the range disclosed therefor, and thereby infringe the claims with impunity. Such a requirement is also contrary to law. *Marzocchi, supra*. The Examiner has not met his burden in showing why objective enablement is not present. It is respectfully requested, therefore, that the rejection under 35 U.S.C. §112 be withdrawn.

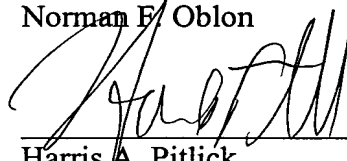
Applicants gratefully acknowledge the Examiner's finding that the present invention produces calcium carbonate filler having unexpected superior properties. In that regard,

Applicants respectfully submit that all of the presently pending claims in this application are now in immediate condition for allowance. Accordingly, the Examiner is respectfully requested to pass this application to issue.

Respectfully submitted,

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In re Marzocchi and Horton, 169 USPQ 367 (CCPA 1971)

In re Marzocchi and Horton

**(CCPA)
169 USPQ 367**

Decided Apr. 15, 1971

No. 8431

U.S. Court of Customs and Patent Appeals

Headnotes

PATENTS

1. Specification - Sufficiency of disclosure (§ 62.7)

Recitation of generic term "polyethyleneamine" must be taken as assertion by applicants that all of the "considerable number of compounds" which are included within generic term would, as a class, be operative to produce asserted enhancement of adhesion characteristics; Patent Office has no concern over breadth of term; its only relevant concern should be over truth of such assertion; first paragraph of 35 U.S.C. 112 requires nothing more than objective enablement; how such a teaching is set forth, either by use of illustrative examples or by broad terminology, is of no importance.

2. Pleading and practice in Patent Office - Rejections (§ 54.7)

Specification - Sufficiency of disclosure (§ 62.7)

Specification disclosure which contains teaching of manner and process of making and using the invention in terms corresponding in scope to those used in describing and defining subject matter sought to be patented must be taken as in compliance with enabling requirement of first paragraph of 35 U.S.C. 112 unless there is reason to doubt objective truth of statements contained therein which must be relied on for enabling support; assuming that sufficient reason for such doubt exists, a rejection for failure to teach how to make and/or use will be proper on that basis; such a rejection can be overcome by suitable proofs indicating that teaching contained

in specification is truly enabling.

3. Pleading and practice in Patent Office - Rejections (§ 54.7)

Specification - Sufficiency of disclosure (§ 62.7)

In field of chemistry generally, there may be times when well-known unpredictability of chemical reactions will alone be enough to create reasonable doubt as to accuracy of broad statement put forward as enabling support for claim; this will especially be the case where statement is, on its face, contrary to generally accepted scientific principles; most often, additional factors, such as teachings in pertinent references (not necessarily prior art), will be available to substantiate doubts that asserted scope of objective enablement is in fact commensurate with scope of protection sought and to support any demands based thereon for proof; it is incumbent upon Patent Office, whenever, a rejection on this basis is made, to explain why it doubts truth or accuracy of statement in supporting disclosure and to back up assertions of its own with acceptable evidence or reasoning which is inconsistent with contested statement; otherwise, there would be no need for applicant to support his presumptively accurate disclosure.

Particular patents-Fiber Coatings

Marzocchi and Horton, Fiber Coatings - Nitrogen Compounds for Improving Adhesion of Vinyl Polymers to Glass, claims 6 and 12 of application allowed; claims 5 and 11 refused.

Case History and Disposition:

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Appeal from Board of Appeals of the Patent Office.

Application for patent of Alfred Marzocchi and Richard C. Horton, Serial No. 470,618, filed July 8, 1965; Patent Office Group 140. From decision rejecting claims 5, 6, 11, and 12, applicants appeal. Affirmed as to claims 5 and 11; reversed as to claims 6 and 12.

Attorneys:

Herman Hersh and McDougall, Hersh, Scott & Ladd, both of Chicago, Ill.

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(Staelin & Overman, Toledo, Ohio, and George A. Degnan, Washington, D. C., of counsel) for appellants.

S. Wm. Cochran (Fred W. Sherling of counsel) for Commissioner of Patents.

Judge:

Before Rich, Almond, Baldwin, and Lane, Associate Judges, and Durfee, Judge, United States Court of Claims, sitting by designation.

Opinion Text

Opinion By:

Baldwin, Judge.

This is an appeal from the decision of the Patent Office Board of Appeals which affirmed the final rejection of claims 5 and 11 of appellants' application ¹ under 35 U.S.C. 103 as unpatentable in view of Werner ² and of claims 6 and 12 under 35 U.S.C. 112 as being based on an inadequate disclosure. Claims 4 and 10 stand allowed.

The Invention

The subject matter of the claims on appeal involves a technique for improving the adhesion characteristics between glass fibers and vinyl polymer resins. Claim 5 is representative and reads as follows:

5. In the combination of glass fibers and a vinyl polymer resin composition present as a coating on the glass fiber surfaces, the improvement which comprises mixing the vinyl polymer resin, prior to coating of the glass fibers, with an amine compound in an amount corresponding to 2-10% by weight of the vinyl polymer resin, and in which the amine compound is monomeric vinyl pyrrolidone.

Claim 11 is drawn to the same concept as claim 5, but defines the invention as "a method of producing glass fibers coated with polyvinyl resin strongly bonded to the glass fiber surfaces." Claims 6 and 12 differ from claims 5 and 11 respectively solely in the recitation of "polyethyleneamine" as the critical "amine compound" additive.

The Section 103 Rejection

Claims 5 and 11 were rejected "as obvious in the sense of 35 U.S.C. 103 over Werner." Werner, the sole reference relied upon here, is addressed to the improvement in the bonding relationship between glass and polyvinyl halide resins. The pertinent disclosure is as follows [emphasis added]:

I have found that polyvinyl halide resins may be successfully modified so as to

obtain excellent glass adhesion by employing a mixture of a polyvinyl halide and a *polymer* of N-vinyl pyrrolidone. By employing a mixture containing from 80 to 97% of a polyvinyl halide and from 20 to 3% of a polymer of N-vinyl pyrrolidone, which term includes homopolymers of vinyl pyrrolidone and copolymers with other polymerizable monomers, a composition is obtained having extremely high adhesion to all glass surfaces.

On the basis of this teaching the examiner took the position, accepted by the board, that the claimed use of *monomeric* vinyl pyrrolidone rather than Werner's *polymeric* vinyl pyrrolidone would be obvious to one of ordinary skill in the art since Werner's teaching would indicate to "one skilled in the art * * * that it is the vinyl pyrrolidone moiety that is enhancing the adhesion." It was also suggested by the examiner that since the claims recite no temperature conditions for the coating operation and since monomers polymerize when heated, the claims could possibly cover circumstances wherein the monomer is polymerized during application. The board appears to have accepted this suggestion and to have extended it even further. It stated:

All of Werner's examples specify heating at elevated temperatures (110°C.-130°C., 165°C., 325°F., 350°F.) with and without elevated pressures. Appellants' specification says nothing about retaining the vinyl pyrrolidone in monomeric form, much less anything about "maximizing adhesion" by preventing polymerization. Indeed, the very designation of the vinyl pyrrolidone as a "monomeric" material introduced into a polymer system for the purpose of altering the properties of such system implies subsequent polymerization of the monomer. Appellants' further argument that the monomer has entirely different capabilities and solubilities than the polymer is also unpersuasive.

Appellants' position on appeal in response to these assertions by the examiner and board is largely to stress again the "marked difference between the properties and characteristics of a polymer as compared to a monomer," and to object to the "purely conjectural" assertion that the monomer polymerizes in the coating after it is applied. Additionally, appellants make the following contention:

Even if it were assumed that appellants' monomeric vinyl pyrrolidone is polymerized when present in the polyvinyl chloride coating, there is no teaching or suggestion

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in Werner that the use of monomeric vinyl pyrrolidone has any efficacy whatsoever in compositions of the type disclosed and claimed. The basis suggested by the Patent Office for the rejection is tantamount to the allegation it would be "obvious to try" the monomer. This "test" of obviousness has been frequently repudiated by this court.

The sole issue is, of course, whether the Werner teaching does suggest to a person having ordinary skill in this art that the use of monomeric vinyl pyrrolidone would have the efficacy indicated in the appealed claims. We agree with appellants that whether the monomer

polymerizes is irrelevant, at least in this regard. What is relevant, however, and here determinative, is the examiner's assertion that the Werner teaching would suggest that it is the vinyl pyrrolidone moiety alone and not some other characteristics peculiar to a polymer which is efficacious in producing the desired adhesion enhancement.³ In the absence of anything to rebut this assertion, which is reasonable on its face, we are constrained to accept it as fact. The inferences which follow from such fact, i.e., that the monomer would possess this same characteristic and that one of ordinary skill would recognize such fact, are inescapable.

It is acknowledged that the above line of reasoning may be viewed as being tantamount to drawing the inference that, to one possessing the ordinary level of skill in this art, it would be "obvious to try" the monomer. Nevertheless, such an *inference of fact may*, at times, be enough to justify drawing the ultimate *conclusion of law* that the claimed subject matter as a whole would have been obvious under section 103. We are satisfied that the circumstances of this case justify an initial conclusion of obviousness. Since the record before us contains nothing to rebut that conclusion, the decision with regard to claims 5 and 11 must be affirmed.

The Section 112 Rejection

Claims 6 and 12, which recite the use of "polyethyleneamine" as the adhesion enhancer, were criticized by the examiner as being based on a disclosure which was not enabling under the first paragraph of 35 U.S.C. 112. The board affirmed his rejection of those claims with the following comment.

The term is obviously generic to a considerable number of compounds varying in the number of ethylene groups, the number of amine groups and the relationship of the polyethylene groups to the amine groups, and accordingly does not provide a reasonable guide for those seeking to improve the adherence of vinyl resins to glass.

We will reverse the board's decision on this rejection since we are unable to find sufficient justification for the holding that appellants' disclosure is not enabling.

[1] Turning specifically to the objections noted by the board as indicated above, it appears that these comments indicate nothing more than a concern over the *breadth* of the disputed term. If we are correct, then the relevance of this concern escapes us. It has never been contended that appellants, when they included the disputed term in their specification, intended only to indicate a single compound. Accepting, therefore, that the term is a generic one, its recitation must be taken as an assertion by appellants that all of the "considerable number of compounds" which are included within the generic term would, as a class, be operative to produce the asserted enhancement of adhesion characteristics. The only relevant concern of the Patent Office under these circumstances should be over the *truth* of any such assertion. The first paragraph of § 112 requires nothing more than objective enablement. How such a teaching is set forth, either by the use of illustrative examples or by broad terminology, is of no importance.

[2] As a matter of Patent Office practice, then, a specification disclosure which contains a teaching of the manner and process of making and using the invention in terms which correspond

in scope to those used in describing and defining the subject matter sought to be patented *must* be taken as in compliance with the enabling requirement of the first paragraph of § 112 *unless* there is reason to doubt the objective truth of the statements contained therein which must be relied on for enabling support. Assuming that sufficient reason for such doubt does exist, a rejection for failure to teach how to make and/or use will be proper on that basis; such a rejection can be overcome by suitable proofs indicating that the teaching contained in the specification is truly enabling.

[3] In the field of chemistry generally, there may be times when the well-known

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unpredictability of chemical reactions will alone be enough to create a reasonable doubt as to the accuracy of a particular broad statement put forward as enabling support for a claim. This will especially be the case where the statement is, on its face, contrary to generally accepted scientific principles. Most often, additional factors, such as the teachings in pertinent references, ⁴ will be available to substantiate any doubts that the asserted scope of objective enablement is in fact commensurate with the scope of protection sought and to support any demands based thereon for proof. In any event, it is incumbent upon the Patent Office, whenever a rejection on this basis is made, to explain *why* it doubts the truth or accuracy of any statement in a supporting disclosure and to back up assertions of its own with acceptable evidence or reasoning which is inconsistent with the contested statement. Otherwise, there would be no need for the applicant to go to the trouble and expense of supporting his presumptively accurate disclosure. Cf. *In re Gazave*, 54 CCPA 1524, 379 F.2d 973, 154 USPQ 92 (1967); *In re Chilowsky*, 43 CCPA 775, 229 F.2d 457, 108 USPQ 321 (1956).

In the present case, the circumstances we see do not support the reasonableness of any doubts which the Patent Office might have had concerning the adequacy of appellants' specification disclosure to support these claims. In fact, those circumstances tend to strengthen rather than weaken appellants' claim to the breadth of protection they seek. In the first place, it has not been asserted by the Patent Office that the chemical properties of known polyethyleneamines vary to such an extent that it would not be expected by one of ordinary skill in this art that any such compound would possess the necessary capability of enhancing adhesion. Additionally, we note that polyethyleneamine is listed in appellants' specification as being only one of a much larger class of amine compounds possessing this necessary characteristic. Finally, we recognize (as did the examiner) the generic nature of appellants' broader concept, i.e., that the desired property of adhesion enhancement stems largely from the amine moiety. It does appear that variation of certain of the secondary factors mentioned by the examiner, such as molecular weight or proportion of ethylene groups, might influence to some degree or even mask the essential "amine" property of the polyethylene amine or its obviously equally essential compatibility with vinyl polymers. However, we see no basis to conclude that the ready avoidance of this result would not be within the level of ordinary skill in this art. Compare *In re Skrivan*, 57 CCPA 1201, 427 F.2d 801, 166 USPQ 85 (1970).

Taking all these circumstances into consideration, we are constrained to conclude that the record before us contains insufficient grounds for questioning the accuracy of appellants' teaching that *any* polyethyleneamine (obviously excepting those whose essential "amine" characteristics and compatibility with vinyl polymers would be masked by the secondary factors mentioned) will function to accomplish the asserted result. It follows that claims 6 and 12 must be held to be supported by a disclosure which is in compliance with the requirements of the first paragraph of 35 U.S.C. 112.

Summary

The decision of the board regarding claims 5 and 11 *affirmed*; that dealing with claims 6 and 12 is *reversed*.

Footnotes

Footnote 1. Serial No. 470,618, filed July 8, 1965, for "Fiber Coatings - Nitrogen Compounds for Improving Adhesion of Vinyl Polymers to Glass" as a continuation-in-part of Serial No. 96,106, filed March 16, 1961.

Footnote 2. U. S. Patent No. 2,853,465, issued September 23, 1958.

Footnote 3. Indeed, the reasonableness of such an assertion is confirmed by the very disclosure contained in appellants' application which indicates that efficacious adhesion enhancers are those "organic nitrogenous compounds which are characterized both by an organic constitution which is compatible with the vinyl polymers and by a polarity expressed in the nitrogen function." As also pointed out by appellants in their brief (about which more will be said later), the nature of the present invention resides in the use of *amine* compounds, broadly, as adhesion enhancers.

Footnote 4. Not necessarily *prior* art references, it should be noted, since the question would be regarding the *accuracy* of a statement in the specification, not whether that statement had been made before.

- End of Case -